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WHOLE No. 3229

NEW YORK, SATURDAY, JANUARY 24, 1920

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High Temperature Resistance

Most men who are not engineers are aware of the fact that when metal is heated to a high temperature it bends easily. When "red hot" they know it is forged easily. And when still hotter it becomes liquid. But these phenomena are not associated with decrease in tensile strength. Yet it is this decrease in tensile strength that permits the metal rod or pipe to be bent or broken easily, and that is why tensile strength tests are so important in selecting pipe for use under high temperatures.

On the other hand, it is commonly believed by engineers who have given more thought to the subject that steel and wrought iron become weaker with increase in temperature. But that is not strictly true, and therein lies a point of considerable interest.

Wrought iron and steel both grow stronger up to a certain point as shown by the ultimate strength curves in Figures 1 and 2. Thus, the maximum strength of both wrought iron and steel occurs at a temperature of 450 deg. Fahr. However, with further increase in temperature the curves show that the ultimate strength decreases rapidly.

Figure 1 shows that the ultimate strength of wrought iron drops very rapidly when the temperature is in the neighborhood of 600° F. to 1000° F., and Figure 2 shows that at the temperature of 1000° F. steel no longer has an elastic limit. Figure 3 is plotted from the test data given in Marks' Mechanical Engineers' Handbook for hard and soft cast iron. These curves tend to show that cast iron grows stronger up to a temperature of about 450° F. and from that point on the strength reduces slightly. The strength of soft cast iron, it will be noted, is practically constant all the way from 100° to 1000° F.

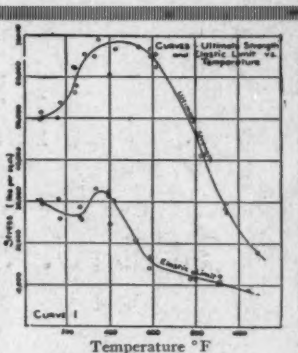

Fig. 1. Wrought Iron

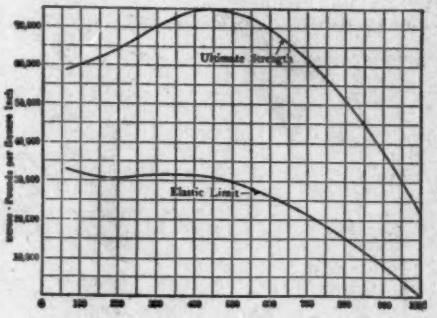

Fig. 2. Wrought Steel

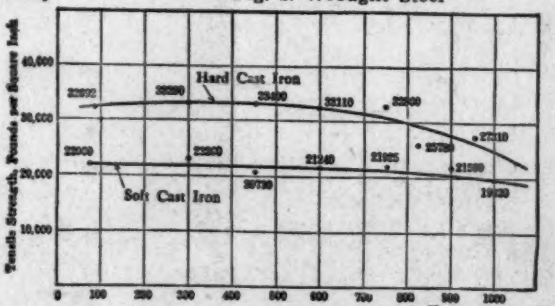

Fig. 3. Cast Iron

SERVICE
CAST IRON PIPE
MEASURED BY
CAST IRON PIPE
CENTURIES

Practical experience with various kinds of pipe under high temperatures confirms the conclusion that may be drawn from these charts as to the superiority of Cast Iron Pipe under such conditions.

The Cast Iron Pipe Publicity Bureau
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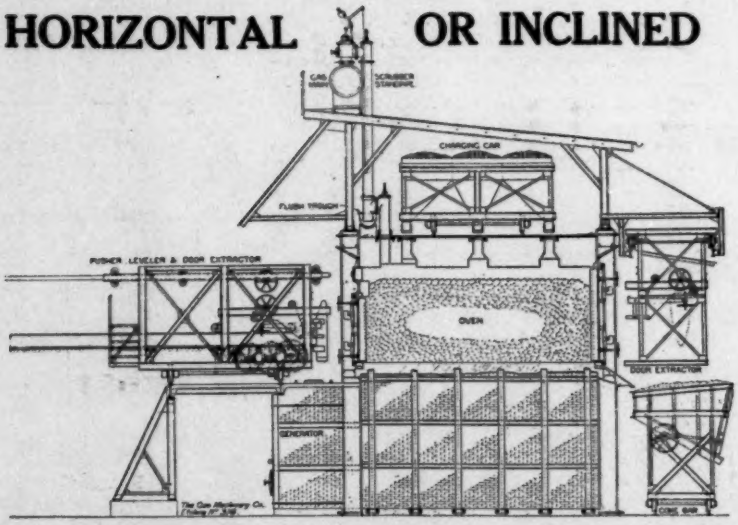

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Light Can Be Used for Selling Goods in Very Much the Same Manner as Type Is Used for Selling Goods

Some of the Things Storekeepers Do Not Know About Gas Lighting—Getting People to the Back of the Store

By J. E. BULLARD

Up to the present time far more attention has been given to making light help produce goods than to making it help sell goods. Very little has been written, and illuminating engineers have apparently given comparatively little attention to the remarkable merchandising value of light. Light can be used for selling goods in very much the same manner that type is used for selling goods.

The first advertisements that were used would be considered very crude to-day. Now all sorts of type combinations are made in an effort to attract attention, hold interest, and to actually sell the goods. Some concerns go so far as to have special type faces designed for their own use. Others have their advertisements hand lettered. The selection and the use of type to make the advertisement more effective has become a profession. There are men who do nothing else but advise in regard to the most suitable type faces and combinations to use.

There is no advertiser who does not use bold face, roman and italic type with various variations of these faces. This is done because it has been found that when an advertisement is all set in the same kind of type as the first advertisement was printed the sales are not as great as they are when much more attention is given to the selection of the type.

Can Use Light in Very Much the Same Manner

We can use light in very much the same manner that we use type. The theaters do this to a very considerable extent now. The spot light directs attention in the same manner that bold face type directs it. The ordinary uniform illumination may be considered as roman type and the foot and drop lights as italics type. In the store, however, we have not yet done very much along this line.

That storekeepers are coming more and more to appreciate the value of light as a selling medium, as well as a means to make it possible for people to buy goods after dark is indicated by the fact that several dealer publications are printing articles along the line of making light sell goods.

Up to the present time it has been customary to install the lighting units in a regular manner throughout the store. To a certain extent we have taken advantage of color. In a department where it is important to have a light that will make the matching of colors easy, we will install units that give a light closely approaching daylight in color value. In the butcher shop we have learned that the light from the ordinary gas arc has a color that makes the meat displayed look more attractive. This, however, is about as far as we have gone.

The Window Display Spot Lighted

It is true that we light the show windows more brilliantly than we do the store itself, but we have done little towards providing spot light effects and different colored light for different displays. Very often a window display is much more effective if it can be spot lighted. All that is necessary to spot light it, is to use focusing reflectors on light units in the front corners of the window and focus the light upon the feature to be spot lighted. This can be done with satisfactory results with gas lighting. Most storekeepers, however, do not know this.

The Front and the Rear

Where the selling power of gas lighting can be used with the greatest effectiveness, however, is in the store itself. Every storekeeper knows that the rear of his

store has not the sales value that the front of the store has. Few appreciate how much this is due to the fact that the front is more brightly lighted than the rear. Since the lighting units of the store are laid out in a uniform manner, the front of the store cannot fail to be more brightly lighted than the rear. The front receives light from the street lamps and also from the window lights.

Light never fails to attract. Therefore, if you light the rear of the store more brightly than you do the front you are going to attract more people to that part of the store. This cannot fail to be the case.

In any store there is certain stock that does not move as readily as some other stock. Make an attractive display of this stock and light it brightly and sales are sure to pick up.

How the Gas Man Can Sell More Store Lighting

It is the study of such things as these that will aid the gas man in selling more gas for lighting. If he can show the storekeeper how more goods can be sold by the use of light that storekeeper is going to buy light from him. In fact, the reason why so much light has been sold in shops, mills and factories is because gas and electric men have been able to show the owners of these plants that better lighting means better and cheaper production.

The error that has been made has been in considering store lighting as the same problem as factory lighting. As a matter of fact, there is as much difference between factory lighting and store lighting as there is between a treatise on engineering and a snappy advertisement for breakfast food. In the factory the problem is to produce goods. In the store the problem is to attract attention to goods in such a way as to sell them.

If we lighted our theaters in the same way that we light the factories in which the furniture and the scenery used is manufactured, how many people would we find in the theaters? The two lighting problems are different and in this case the fact has been recognized.

For store lighting, modern gas units offer the ideal light. With large bowls we can use a great variation in the number of burners inside the bowls. By varying the color of the glass we can get different colored light, provided we want to change the color. We can have exactly the amount of light we desire in each section of the store and still retain the uniform appearance. It is also an easy matter to vary the candle-power of the different units.

Getting the Crowds and Bringing Them Back Again

Why is it that there is usually a larger crowd at the opening of a store than there is a few days later? It is because everything is new when the store is opened. As the days go by the store becomes more of a commonplace. It loses its news value. Special sales and other methods have to be resorted to in order to bring back the crowds.

In order to keep people deeply interested in the store something new must be done continually. When we study the history of concerns that have made phenomenal successes we find that they have always been doing something new. They have been doing things that could not fail to attract attention. They have been quick to take advantage of everything that has real news value.

There is nothing which can be used to emphasize a change more than light and, of course, all that news is, anyhow, is a change in things. If things never changed we would never have any news. There is a large department store that makes a record-breaking number of changes in its show windows each year, and people who pass these windows have it impressed upon them that these changes have been made. They are impressed because with each change in display there is usually a change in the color of the light used to illuminate that display. People might not be aware of the change in the display itself, but the change in the color of the light cannot be escaped. It holds the attention and causes the passers-by to look at the windows.

It is not necessary to confine these lighting effects to the window. Displays made in different parts of the store and brilliantly lighted will attract attention. Business men are coming more and more to appreciate the value of store displays. This is especially the case with the man who runs a small store.

As has already been stated the storekeeper is already beginning to read in his trade papers what can be done with light to make it easier to sell goods. It is essential that the gas man also give this subject a reasonable amount of attention. This is rather of a new angle from which to sell light and there is no reason why the gas man should not take full advantage of it. It will most certainly pay to try it out in the salesroom of the gas company. In fact, one of the strongest arguments that the gas lighting salesman can have for lighting that really sells goods is that it has really sold goods in the gas office.

Instead of making a salesroom display in the spring and continuing it the same until fall, make changes in the display. It may be merely a different style range that is featured. Every gas company carries in stock a considerable variety of ranges. Usually there is one range that sells far better than any other. In some cases this is due to the fact that this model is displayed more effectively than the others. In fact, some people may delay purchases because no other range is really featured during the selling season.

Change the arrangement on the floor each week and each week place a different range under some strong light, not having the strong light in the same place each week, and it is surprising how much difference it will make in the appearance of the room. It will appear as though there was something really new there each week, and more people are bound to be influenced than would be the case if the room appeared the same from season to season.

True Conservation

W. H. Hodge, in the course of an article in the Investment News public utility review supplement urging that every American citizen read Secretary Lane's recent report to the President, says:

"There are two agencies laboring incessantly in the true conservation of the sources of light, heat and power. These are the gas companies and the electric companies. Their whole plan and scope of operation is based in the most efficient extraction of power from its sources and its most economical distribution and application. They have grown up because they saved—saved coal and oil and labor and money for the people."

Use of Gas in Connection with Bronzing Processes

Uses for Heat of Many Kinds—Where Gas Equipment Particularly Appeals—Need of Taking Local Conditions Into Account

By GILBERT C. SHADWELL

Bronzing is a term having many significations. The commonest, perhaps to the layman, is that of painting with gold, aluminum or other metallic paint. This meaning, however, is of very small importance to the gas man, and that part of the subject will have only secondary consideration in our present discussion.

Bronzing is now performed according to the color desired for, although the word means "a brown color," being taken from the Italian word "bronzino," signifying "burnt brown," yet in commercial language it includes all colors. Success in the art of bronzing greatly depends on circumstances, such as the temperature of the alloy or of the solution, the proportions of the metals used in forming the alloy and the quality of the materials. The moment at which to withdraw the goods, the drying of them and a hundred little items of care and manipulation, require attention which gas as a fuel can reduce to but a small proportion and the rest will be up to the experience and capacity of the gas man's client.

A subject of this kind is naturally of a very diverse character. There is no one general way, one general rule or one general series of equipments for carrying out the work. The description must, therefore, be of necessity, somewhat disconnected. We find heat required for such different bronzing processes as in forming an aniline bronzing fluid or for cleaning and drying brass goods which are black bronzed. Again heat is required for bronzing brass and copper by simple immersion in many instances—for the fluid or liquid must often be hot or sometimes boiling when the immersion takes place.

There is one use for heat pretty nearly all through, however, and that is for cleaning the parts and washing them—perhaps we ought also add for heating the sawdust for drying them or for the direct heat drying system where that is used—when a tank furnace or cauldron furnace is of necessity and part of the equipment. Steam will be found in pretty general use but gas equipment will appeal to the prospect for his lye baths, etc., and this will also be of general value in conjunction with the cauldron furnace in much more of the work which the writer will try to present at this time. The old steam tanks can be easily converted as shown.

It must not be forgotten, however, that it is practically impossible to recommend definite equipment all through—to attempt to do so would be confusing to the reader who must take local conditions into account. Hence, as far as possible, there will be outlined merely the process or formula involved and the industrial man will be left to select his equipment according to his best judgment.

Bronzing Fluids

Aniline Bronzing Fluid.—In preparing this type of fluid they take ten parts of aniline red and five parts of aniline purple and dissolve in 100 parts of alcohol at 95 deg. in a water jacketed gas heated kettle. This will, when left at that temperature, assist solution. When the solution has been effected, five parts of benzoic acid are added and the whole is boiled from five to ten minutes until the greenish color of the mixture is transformed into a fine light colored bronze. This bronze is stated to be very brilliant and to be applicable to all metals as well as to other substances. It is easily laid on with a brush and dries promptly. Japanese pickling fluids for bronze and copper are three very interesting fluids used originally by the Japanese and now employed to some extent in this country which are employed when boiling. For simplicity we will tabulate them:

Materials.	Fluid 1.	Fluid 2.	Fluid 3.
Verdigris	438 grs.	87 grs.	220 grs.
Sulphate of copper.	292 grs.	437 grs.	540 grs.
Niter	None	87 grs.	None
Common salt	None	146 grs.	None
Sulphur	None	233 grs.	None
Water	1 gal.	None	1 gal.
Vinegar	None	1 gal.	5 fl. dms.

That most widely employed is No. 1. When boiled in No. 3 solution, poor copper will turn a brownish red and the bronze called "Shaku-do" which contains a little gold becomes purple. Small quantities of various proper admixtures in the bronzes form a variety of tints. When colored the goods are often lacquered over and the results we see in many fancy goods put on the market in the department stores to-day.

Miscellaneous Fluids

Perhaps the best way to outline the bronzing processes will be to give as concisely as possible a list of them and briefly how they are used; i. e., if boiled in mixing or in using, if dried, etc. In this way only it is believed will the matter be made clear.

For convenience we will number the fluids:

1. A common aniline bronze somewhat different to that already mentioned follows: Red aniline, 50 grs.; violet aniline, 50 grs.; alcohol, 2 oz.; benzoic acid, 50 grs. They dissolve the aniline in the alcohol by aid of a water bath, gas heated, add the benzoic acid, boil in the water bath for a few minutes until the liquid changes from green to a light brownish bronze color. This bronze is applied to leather, metal, wood, or almost any kind of material.

2. Brown Bronze Dip.—Iron scales, ½ lb.; muriatic acid, ½ lb.; arsenic ½ oz.; zinc (solid), ½ oz. The zinc is kept in only while in use, and the liquid should be warmed but used at about 60 deg. Fahr. It should not be heated over 100 deg. Fahr.

3. Green Bronze Dips.—Verditer green, 4 oz.; salt, 4 oz.; wine vinegar, 4 qts.; sal ammoniac, 2 oz.; alum, 1

oz.; French berries, 16 oz. These ingredients should be boiled together.

4. Olive Bronze Dip for Brass.—Muriatic acid, 1 oz.; nitric acid, 1½ oz.; add palladium or titanium. Dissolve the metal and add one gallon of pure soft water to each pint of the solution.

5. Black Bronze for Brass.—The articles are first dipped bright in aqua fortis (nitric acid); they then rinse the acid off with clean water and place it in the following mixture until it turns black: Hydrochloric acid, 12 lbs.; sulphate of iron, 1 lb., and pure white arsenic, 1 lb. It is then taken out, rinsed in clean water, dried in heated sawdust, polished with black lead and then lacquered with green lacquer and baked in a lacquer oven.

6. A Dipping Bronze for Brass.—Take 1 pint strong vinegar, 1 oz. sal ammoniac, ½ oz. alum, ¼ oz. arsenic; dissolve them in the vinegar and the compound is fit for use. There are brass founderies who have used this for several years and when the metal is good it is seldom found to fail.

7. For a dipping brown they often take to 1 pint of water, 5 drams of perchloride of iron. The articles, of course, must be made perfectly clean and dipped in the hot solution until the required color is obtained; then they are dipped in clean hot water, boiled, lacquered and baked in a gas heated lacquer oven at about 250 deg. Fahr., or even lower, very often depending on the make and style of the lacquer. If only a varnish is required they use clear shellac varnish colored with dragon's blood, gum and burnt amber.

8. A brown bronzing liquid for many purposes is often made of: Fuchsin, 10 parts; aniline purple, 5 parts; methylated spirit, 100 parts. They then apply gentle heat and when solution has taken place, they add benzoic acid, 5 parts. They then boil the whole for about 5 or 10 minutes until the green color has changed to a brown. This is another variation No. 1.

9. An old German method makes this by treating dammar resin with about one-third of its weight of carbonate of potassium, stirring with a mechanical stirrer or agitator (such as is regularly supplied to a gas heated cauldron furnace) for three days. Next they take the resinous mass and finely powder it. Next it is scattered in thin layers on hurdles exposed to a temperature of about 50 deg. Cent., and left for several months. The resin is then dissolved in benzine or another distillate of naphtha under a boiling point of 150 deg. Cent. after dry ammonia gas has been led through the solvent. The bronze powder remains suspended in this varnish. Articles bronzed with it are said to retain for years together the original fresh metallic luster.

10. Ormolu Dipping Acid for Sheet Brass.—Niter, 6 lbs.; sulphuric acid, 1 gal.; nitric acid, ½ pint; numatic acid, ½ pint. The numatic acid must be put in last and the whole stirred with a stick.

11. Parisian Bronze Dip.—Sal ammoniac, 1 oz.; common salt, 1 oz.; ammonia, 2 oz.; dissolved in a quart of vinegar. Clean the metal, rub with the solution and dry assisted by friction with a mechanical brush.

12. Pale Deep Olive Green Bronze.—Perchloride of iron, 1½ parts; water, 3 parts. Mix as usual and immerse the brass.

13. Bronzing Small Articles.—1 part of oxide of iron, 1 part of white arsenic, 12 parts of hydrochloric acid. Clean the brass well to get rid of lacquer or grease and apply with a brush until the desired color is obtained. Stop the process by oiling well when it may be varnished or clear lacquered and baked.

14. Bronze Gold.—Burnish gold, 2½ parts, 2 parts of oxide of copper, 1 part of quicksilver, ¼ part of gold flux. Having dissolved the copper in aqua fortis (nitric acid), it is again separated from its solvent and falls to the bottom of the vessel by the addition of the iron; the proportion of precipitate of copper may be decreased or increased at discretion which makes the bronze poorer or richer in color according to the proportion of burnish gold contained in the mixture. It is chiefly used for ornamenting the handles and heads of jars, vases, and so on, and occasionally intermixed with burnish gold.

15. Green Bronze.—Here they dissolve 2 oz. of nitrate of iron and 2 oz. of hyposulphite of soda in 1 pint of water. They immerse the articles in this bronze till the required tint as almost any shade from brown to red can be obtained; then they wash well with water, dry and brush. One part of perchloride of iron and two parts of water mixed together and the brass immersed in the liquid gives a pale or deep olive green, according to the time of immersion. If nitric acid is saturated with copper and the brass dipped in the liquid and then heated it assumes a dark green. If well brushed it may be lacquered with pale gold lacquer or else polished with oil.

Miscellaneous Bronzing

To Bronze Cast Iron.—The following is a method of giving cast iron the appearance of bronze without coating it with any metal or alloy: The article to be so treated is first cleaned and then coated with a uniform film of some vegetable oil; this done it is exposed in a furnace to the action of a temperature sufficiently high to carbonize the oil; in this way the cast iron absorbs oxygen at the moment the oil is decomposed and there is found at the surface a thin coat of brown oxide which adheres very strongly to the metal and will admit of a high polish, giving it quite the appearance of fine bronze.

A lye for bronze powder for iron is made as follows: To one pint of methylated spirits there are added 4 oz. of gum shellac and ½ oz. of gum benzoin. The material is warmed over a water bath and slightly agitated. When the gums are dissolved it is allowed to settle for two or three days. The clear portion is poured off and reserved for fine work, using the sediment with more alcohol which then becomes workable, when strained for first coat or coarser work. The bronze is added to this and applied with a soft brush to the iron which must partly be warmed in oven to about 100 deg. Fahr. or a little under. It can then be thinned to avoid wrinkles and brush marks and afterwards it is varnished. Bronzing articles made of iron wire: The following is a good process adopted for the purpose mentioned: The wire is first cleaned perfectly and then it is immersed in a solution of sulphate of copper (blue vitriol) until covered with a coating of metallic copper. It is then washed and the articles are immersed in the following solution: Verdigris, 1 pint; diluted with water until it appears to taste only slightly metallic; then boiled for a few minutes and filtered. The articles are steeped in this liquor at the boiling point, until the desired effect is produced, but they must not be kept in too long. When taken out they have to be washed carefully in hot water and dried.

The following is a tabulation secured from a well-

Bronzing Brass by Simple Immersion

No. of Method	Water	Nitrate of Iron	Perchloride of Iron	Permuriate of Iron	Nitrate of Copper	Tersulphide of Arsenic	Muriate of Arsenic	Potash Solution of Sulphur	Pearlash Solution	Cyanide of Potassium	Ferrocyanide of Potassium	Sulphocyanide of Potassium	Hyposulphite of Soda	Nitric Acid	Oxalic Acid	Color
	Pt.	Dr.	Dr.	Pt.	Oz.	Gr.	Oz.	Dr.	Dr.	Oz.	Pt.	Dr.	Dr.	Dr.	Oz.	
1	1	5	..	..	..	..	..	..	..	..	..	..	..	..	..	Brown and every shade to black
2	1	..	5	..	..	..	..	..	..	..	..	..	..	..	..	Brown and every shade to black
3	1	16	..	..	..	..	..	..	..	..	..	..	16	..	..	Brown and every shade to red
4	1	..	..	..	..	..	..	..	..	..	..	..	16	1	..	Brown and every shade to red
5	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	Brown and to red
6	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	Brown and to red
7	1	..	..	..	..	..	..	..	..	1	..	..	..	4	..	Dark Brown
8	1	..	..	..	..	30	..	..	6	..	..	..	..	..	..	Yellow to red
9	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	Orange
10	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	Olive green
11	1	..	5	..	..	..	..	..	..	..	..	2	..	..	..	Slate
12	1	..	..	..	..	..	..	..	..	..	..	..	20	..	..	Blue
13	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	Steel gray
14	1	..	..	2	..	..	10	..	..	..	..	..	..	..	..	Black

known firm of brass founders in England. There are fourteen liquids giving varying colors and the results are said to be very elegant.

In the preparation of No. 5 in the latter tabulation the liquid has to be brought to a boil and cooled. In using No. 13 the heat of the liquid must not be under 180 deg. Fahr. Again No. 6 is slow in action. The action of the others is for the most part almost immediate. Incidentally it must be forgotten that an English pint equals 20 ounces.

17. The next series covers some further bronzing fluids but for copper in place of brass.

Bronzing Fluids for Copper by Simple Immersion

No. of Method	Hydrochloric Acid	Water	Nitrate of Iron	Sulphate of Copper	Sulphite of Antimony	Sulphur	Muriate of Arsenic	Peat Ash	Sulphocyanide of Potassium	Hypo Sulphite of Soda
	Dr.	Pt.	Dr.	Oz.	Dr.	Dr.	Dr.	Oz.	Dr.	Oz.
1	..	1	5	..	..	..	..	..	..	..
2	..	1	5	..	..	..	..	..	2	..
3	2	1	..	1	..	..	..	..	..	1
4	4	1	..	..	2	..	..	1	..	..
5	..	1	..	..	..	1	..	1	..	..
6	..	1	..	..	..	..	1	..	..	..

The following gives a list of the colors resulting from immersing copper in these fluids; the numbers refer to that table:

No. in above table.	Color.
1	Brown or every shade to black
2	Dark brown drab
3	Dark brown drab
4	Bright red
5	Red or every shade to black
6	Steel gray at 180 deg. Fahr.

18. Bronze Green Dip.—Wine vinegar, 2 quarts; verditer green, 2 oz.; sal ammoniac, 2 oz.; alum, 1½ oz.; salt, 2 oz.; French berries, 8 oz. The ingredients are boiled together.

19. To Bronze Castings (by dipping).—In this case it is customary to pickle the castings in sulphuric acid and water (1 to 2 parts) and cover with lard; then dip for an instant in a solution of copper sulphate, 3 oz.; sulphuric acid, 5 oz., and 1 gallon of water. Then they rinse in cold water and dry in a sawdust dryer.

Bronzing for Leather.—The writer recalls visiting a factory where shoes were bronzed and presented a very fine color. The work was done as follows: A small amount of what is called "insoluble" aniline violet is immersed in water and this is warmed slightly until it dissolves (in spite of the fact that it is called insoluble but is only sparingly soluble). When brushed over the shoes it dries quickly; it may have to be repeated but gives beautiful results finally.

Bronzing Ornaments.—Having thoroughly cleaned and polished the surface of the article with a brush, common crocus powder is applied, previously made into a paste with water; when dry it is placed in an iron ladle or a specially designed holder over a suitable burner or in an oven furnace or even in a high temperature oven at any temperature from 600 to 1,100 deg. Fahr. for a minute or two and then allowed to cool. When sufficiently cold it is polished with a revolving plate brush. By this process a bronze similar to that on tea urns is produced. The shade depends upon the temperature and the length of time during which the goods were heated.

By substituting finely divided plumbago for crocus powder in the above process a beautiful deep and bronze appearance is produced. Or the metal may be rubbed with a solution of potassium sulphite (liver of sulphur is the common name) and then dried. This produces the effect of antique bronze very exactly.

Another method is to dissolve 2 oz. of verdigris and 1 oz. of sal ammoniac with water until well thinned. After this it must be boiled for a few minutes and filtered for use. Copper medallions and other articles previously thoroughly cleaned of grease and dirt are

to be steeped into this liquor at the boiling point until the desired effect is produced. Care has to be taken not to keep them in the solution too long. When taken out they should be carefully washed in hot water and well dried in a dry room. This gives a beautiful antique appearance and many of the "art goods" manufacturers use it.

There is another method, originating it is believed in China, where they made a paste with 2 oz. each of verdigris and vermilion, 5 oz. of alum and sal ammoniac all, in fine powder. Then they add as much vinegar as they require. After this it is spread over the surface of the copper, previously well cleaned by being dipped in a hot lye bath and washed in cold and hot water. It has then to be brightened uniformly. The articles must be warmed in a low temperature oven and then again well washed and dried. Then, if the tint is not deep enough the process may be repeated. The addition of a little vitriol inclines the color to a chestnut brown and a little borax to a yellowish brown.

Another common method used by similar manufacturers is to dissolve 1 oz. of sal ammoniac, 3 oz. of cream of tartar and 6 oz. of common salt in 1 pint of water. Heat the whole in a kettle. Then add 2 oz. of nitrate of copper dissolved in ½ pint of water. It is then to be well mixed and it has to be separately applied to the goods. The effect is very antique, especially if placed in a damp situation and then dried.

The imitation of bronze mildew may be produced as follows: They dissolve equal weights of nitrate of iron and hyposulphite of soda in eight parts of water. They then immerse the articles in this until of the right tint. After this they wash well with water, dry and brush. One part of chloride of iron, 2 parts of water imparts to brass a fine antique green. They then brush well and lacquer with pale gold or lacquer. After this the articles are polished with oil.

Using Indirect Gas Radiators

Bronzing Plaster Casts.—There is quite a little work done of this nature by those manufacturing all grades of plaster models. The process consists in boiling a size made of isinglass and then coating the figure with it, until the surface continues in a moist state and will absorb no more. They then touch it over lightly and sparingly with gold size. It is then set in a dry room which should be heated with indirect gas radiators. After it is almost dry they touch it over with bronze powder, replace to dry in the dry room and then brush to remove any irregularities in the surface.

There is another method used for the higher grade goods on the market which is carried out as follows: Linseed oil soap is made by vaporizing the oil with caustic soda (in a gas heated cauldron furnace) and precipitating the soap with salt. It is then separated, dissolved in chemically pure or distilled water and the mixture of a solution of 4 parts of the vitriol and 1 part of copperas is added as long as a precipitate forms. This is filtered out, washed and dried and 8¾ oz. are applied with each pound of quick drying varnish and 5¾ oz. of white wax. This is applied to the surface of the articles which are automatically heated in a conveyor oven so that they emerge warm, the material dries automatically. If necessary a further baking is given in another oven. The high parts are touched up with a bronze powder.

In a simpler process, they shellac the articles and gild with bronze powder and then varnish as they come out of the end of the conveyor oven referred to. The varnish and powder can, of course, be united and applied together as this is a standard article, regularly marketed.

There is, however, a more common process which is a modification of the former of these two and which is also used with a conveyor oven arrangement.

A soap is prepared just as before with linseed oil boiled in a cauldron furnace with caustic soda lye to which they also add a solution of common salt. The modifications, however, are mainly as follows: The liquid is concentrated by boiling till it becomes somewhat granular on the surface; it is then strained through a linen cloth and what pours through is diluted with boiling water and again filtered. Then they dissolve 4 parts of blue vitriol and 1 part of copperas separately in hot water and add this solution to the solution of soap as long as it occasions any precipitate. This flocculent precipitate is a combination of the oxides of copper and iron with the margaric acid of the soap, the former giving a green and the latter a reddish brown color, the combination of the two resembling that greenish rust which is characteristic of ancient bronzes. When the precipitate is completely separated, a fresh portion of the vitriol solution is poured upon it in a copper pan or kettle and boiled, in order to wash it. After some time, the liquid is poured off and the soap washed with warm and afterward with cold water, pressed in a linen bag, drained and dried when it is ready for use in the following manner: Three lbs. of pure linseed oil are boiled with 12 lbs. of finely powdered lithrage, and the mixture is strained through a canvas cloth and permitted to stand in a warm place until it becomes clear. Fifteen ounces of this, 12 oz. of the above described soap and 5 oz. of fine white wax are melted together at a gentle heat in a porcelain basin by means of a water bath. The mixture must be kept some time in a molten state, to expel any moisture which it may contain. It is then applied by means of a paint brush to the surface of the gypsum which is heated to a temperature of about 200 deg. Fahr. After exposure to air for a few days or after being in a dry room supplied with heated air in motion from a blower and gas fired heater, the surface is rubbed with cotton wool or a fine rag and variegated with a few streaks of metal powder or shell gold. Small objects may be dipped in the melted mixture and then exposed to heat in an oven until thoroughly penetrated and evenly coated with it.

The Bronzing of Zinc

The usual method of bronzing zinc is to give a coat of brass by the electroplating method. Then they wet with a cloth dipped in copper protochloride, dissolved in hydrochloride acid. It is then dried in an oven, when dry they brush with equal parts of iron peroxide and plumbago mixed up with a little essence of turpentine and varnish with thin copal varnish.

The latter is often applied while the article is warm and the warming can be done by means of the conveyor oven already spoken of. There are several methods of

(*Continued on page* 69.)

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SIXTY-FIRST YEAR

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As the Journal Views It

Prove It

J. E. Bullard, in this week's leading article, starts out to tell gas men a new way to sell store lighting and ends up by showing them how to kill two birds with one stone—prove to the storekeeper that light planning can make goods move faster and at the same time sell more appliances.

Whatever the psychology of it, humans are very much like moths: they herd toward bright lights. We've been dragged along by this device ourselves.

Mr. Bullard suggests a means of making the rear of the store as advantageous a place to sell goods as the front; how to get attention centered on merchandise the storekeeper particularly wants to move; how to maintain the news interest in the establishment.

Every storekeeper wants to accomplish these things. If the gas man can show him the way there is a sure sale of gas-lighting appliances.

Nothing will influence the storekeeper so much in his judgment as a favorable record of actual results. Let the gas man first prove his case in his own shop, incidentally increasing his own merchandising effectiveness; then go out and gather the harvest.

Calls for Immediate Correction

Three hundred and twenty-five gas companies and less than eighteen hundred individuals are listed as members of the American Gas Association. This is an absurd showing up; not of the association, but of the American gas industry.

The achievements of the association have been big; big enough, indeed, to have been creditable even if it had been the whole efforts of one hundred per cent of

the whole gas industry. How big they would have been had the whole American gas industry contributed its efforts, as a matter of fact, would stagger the imagination to contemplate. As it stands it is a rather embarrassing revelation of how hard the few must have striven that the many might profit.

It is needless to enumerate the advantages that would accrue to the gas man or the gas company through membership in a strong national gas association. Any man of ordinary common sense can discern enough, without by any means encompassing all that actually exist, to make the costs of membership and the co-operative effort it entails seem very insignificant indeed.

Every gas company, North, East, South and West, in the United States, and even Canada—every gas man—should be enrolled as member in the American Gas Association. This in duty to themselves, that they might profit through the aid and assistance in operation, selling and management that they would derive thereby—not to mention the duty they owe their fellows in putting their shoulders to the common wheel.

Filling All Vacancies from Below

On the face of it the policy of filling all vacancies that occur in the higher posts by selection of men from the ranks in the same organization as a hard and fast rule appeals to one's sense of justice. But, broadly applied, is it healthful to the National welfare?

In certain organizations it has proved of practically measureless value. But has this not been because such organizations have been comparatively few and the highest type of young man has flocked, therefore, to them in such numbers that these organizations have in their lower ranks almost exclusively the pick of ability to select from? If every organization in the United States adopted the same practice would it not contribute towards mediocrity?

Viewed on its broader aspects we are opposed to this doctrine. It seems to us that it compels a man to determine whether he will be a success or failure in life at a period when he is least prepared to make a sound selection.

If he starts in at the bottom with a go-ahead and enduring organization it is certain that he will be a success. If he starts in with an organization that is already on the downgrade he is apt at middle life to have to start in at the bottom again with some other organization and only, at the end of his career, attain the half-way point of success.

And he must make his most vital selection at scant maturity when he has had no practical experience with life that will enable him to judge from outward indications whether the organization he is tying his life to is a go-ahead organization or a downgrade organization.

We rather prefer the old way of doing things, when, if we had outstanding ability and the people we were with didn't appreciate it and recognize it substantially, there were plenty of others who would gladly pay the price to get us away from them.

Limitless opportunity is the greatest thing in life. In the land where it exists there can never be to a grave degree anarchy, socialism, Bolshevism, or any other of the hectic emotions that are born not so much by real abuses as they are born by too much monotony of existence, too much of the cut and dried, too much being in a rut.

The average man of the American type would rather go half fed through his lifetime, with boundless possibilities always ahead, than drowse out his life in sleek gluttony realizing that, though he is well fed and is comfortable, yet he has reached the end of his possibilities. That is why the majority of us elect not to become Government employees.

Applied on a universal scale the policy that all workers must come in at the bottom and work up would give the employer a mortgage on the employee's future, would effect a condition of peonage, would mean that no matter how miserably a man was compensated in proportion to his present status, he would fare even worse by quitting and going elsewhere, for elsewhere he would have to start in at the bottom and start up.

The adoption of such a policy has become so general that it has become a grave factor. It is time the trend be diverted again towards the old methods ere the new becomes a real menace and a leech that may rob this land of its proudest boast—that of its being "a land of boundless opportunity."

From the Journal 60 Years Ago

Leavenworth, Kan., starts off ambitiously with a gas plant of 25,000 cu. ft. a day capacity.

An "infamous" fluid made by dissolving a portion of camphene in a larger portion of high-proof alcohol seems to be making inroads into the gas-lighting business. The JOURNAL devotes liberal space to listing fatalities due to its utilization.

Bath, N. Y., is building a gas works.

Baltimore, Md., stock is hard to buy, because none will sell. The JOURNAL admits the company is one of the best in the United States, but does not approve of its continuing the use of cast-iron retorts.

The Attleboro (Mass.) company "contracts no debts but pays cash for everything." It made a profit of $3,551.57 for the year 1859.

Use of Gas in Connection With Bronzing Process

(*Continued from page 66.*)

bronzing zinc by simple immersion and for convenience they are tabulated below:

No. of Method	Water	Nitrate of Iron	Protochloride of Tin	Sulphate of Copper	Ferrous Chloride	Lead Chloride	Pearl Ash	Sulphocyanide of Potassium	Hyposulphite of Soda	Gerancine Infusion	Logwood Infusion	Color
	Pts.	Drs.	Drs.	Drs.	Drs.	Oz.	Oz.	Drs.	Drs.			
1	1	5	..	..	..	..	..	..	..	..	..	Black
2	1	..	1	..	..	..	..	..	..	..	..	Black
3	1	..	1	..	..	..	..	1	..	..	..	Dark Gray
4	2	..	..	1	1	..	..	..	..	..	..	Dark Gray
5	..	..	..	..	..	x*	..	..	..	..	..	Dark Gray
6	2	..	..	..	1	..	..	..	..	..	..	Green gray
7	..	..	..	..	..	..	..	..	..	x	..	Red (boil)
8	1	..	..	4	..	..	4	..	..	..	..	Copper color†
9	1	..	..	8	..	..	..	..	8	..	..	Copper color with agitation
10	..	..	..	..	..	..	..	..	..	..	x	Purple (boil)

* Made to the consistency of cream.
x Boil; add as required.
† Plates so c Λ z.

Bronze Powders

The number and variety of bronze powders can hardly be appreciated. Some that look like gold are not so, whereas others at which doubt might be expressed actually turn out to be the real article. It is usually possible to tell them by chemical test alone, but as we are more concerned with the part gas plays in making them we will deal with the manufacture of some of these powders.

Silver bronze powder is sometimes made by melting together equal parts by weight of bismuth and tin and then adding an equal weight (1 part to 1 part of the tin) of mercury. When cool the mixture is powdered. A cheap gold bronze is made as follows: They melt 1 lb. of tin in a soft metal furnace and pour it on ½ lb. of pure mercury. When it solidifies they grind it into powder with 7 oz. of sulphur and ½ lb. of sal ammoniac.

A better grade is made of copper, 83 parts, and zinc, 17 parts, which gives a bright yellow powder when ground up after melting.

An orange colored "gold bronze" is made by melting cooling and powdering copper, 90 to 95 parts and 5 to 10 parts, and copper red bronze consists of copper, 97 to 99 parts and zinc, 1 to 3 parts. The better grade, however, is made quite differently as follows: They grind leaf gold with honey until the leaves are broken and minutely divided. This mixture is then dissolved in an enamel kettle, gently heated with water in a water bath. The gold dissolves and the water and honey are drawn off and usually filtered to collect any gold which might otherwise be lost. What is called German gold is a yellow alloy leaf similarly treated. Silver bronze can be also be made in the same way, or as an alternative, silver is dissolved in nitric acid and precipitated in powder form by means of polished copper sheet or wire.

Another powder is made from verdigris, 8 parts; putty powder, 4 parts; borax, 2 parts; niter, 2 parts; bichloride of mercury, ¼ part. These are ground into a paste with oil and then fused by a suitable gas furnace —a small cauldron or soft metal furnace being a good thing to use. The grinding is then taken care of, and, although an operation of some difficulty, it will not be considered at this point as not being of particular interest to readers. It will be seen, however, that bronzing has a far wider significance than would ordinarily seem to be implied. In short, it is a process of giving either a bronze-like, gilt-like, silvery, or antique metallic surface or appearance to metals and other substances. It has also been seen that the processes vary and may be classed as coating with a metal alloy, coating with a metal in paste solution or vapor, corrosion coating with a gum, applying bronze powders, painting, etc. The modes in part vary with the materials and results needed. Heat is needed in the majority of cases either to develop the color, to dissolve the materials or to add speed to the process.

Gas men will not fail to notice that the work mentioned applies not to only one or two industries, but to several dozen industries. The gas consumptions may not be great, but they are steady, and long hours which are factors not to be ignored. It is, in a word, worthwhile business.

In this article no attempt has been made to deal with the process of browning, bluing and brass and other coloring. These will be dealt with in later discussions.

St. Louis Company Returns to Pre-War Heat Unit Standard

C. L. Holman, president of the Laclede Gas Light Company, St. Louis, notified city officials that he had instructed his operating department to maintain the quality of gas on the pre-war basis of 600 B.t.u. per 1,000 cu. ft.

During the war the company was permitted to reduce the quality to a maximum of 575 and a minimum of 520. This permission was granted to permit the gas company to make toluol, used in making explosives for the Government, the extraction of toluol depriving the gas of some of its heat units.

Increase Your Sales of Gas Heaters and Appliances by the Art of Suggestion in Window Display

By WILLIAM BLISS STODDARD

One of the chief delights on a winter night—especially in the small towns and rural sections—is popping corn. In this age, when young and old are too prone to seek amusements outside night after night, anything that tends to keep them at home should be welcomed, and a return to the simple pleasures of our fathers' day is much to be commended. Popping corn, roasting chestnuts, toasting marshmallows serve to beguile the long evenings. But few homes in this age are equipped with an old-fashioned fireplace, or even a gas grate. Here, then, is where the compact and convenient little cylindrical gas heater comes into play. It can be carried from one room to another and installed wherever it is needed. And it makes a splendid roaster and toaster, for its heat is more even than that of the wood or coal blaze. Any merchant who would feature the gas stove for this purpose—if only as a side issue from heating—would find his sales of the moderate-price stove materially increasing. A circular letter gotten out, suggesting the new use to which the heater can be put, with name and address filled in on the typewriter, and this letter sent to a list of farmers, high-school students and housewives, would give valuable publicity. Undoubtedly, however, an attractive window display would have the greatest weight, and many a gas appliance dealer would find it to advantage to install a display built along the lines of that shown by Mitchell, of Philadelphia.

The object that focussed the gaze of all passers-by was a small gas heater with open door, through which could be seen the steady burning flame. Standing in front of it was a girl (a model borrowed from a local dry goods store) in gypsy carnival costume. During the noon hour, when the office crowds thronged the streets, an actual girl was employed to pop corn, and the delicious odor floating out caused many to decide immediately that they too would have a little stove and pop some corn for themselves. In front were a number of wire poppers, some filled with shelled and others with flaky popped corn. Clumps of ferns were banked in the corners, and on a mound in the center of each group was a tall vase of big, feathery chrysanthemums. Beneath the green fronds of the ferns set two large Japanese dolls, dressed as boy and girl, eating with gusto from a big bowl of the white flakes placed between them. From the ceiling hung a number of big branches of dark red oak leaves, while the floor was almost covered with red and brown leaves. A big card advised: "Use a GAS HEATER for popping corn, roasting chestnuts or toasting marshmallows. It gives a steady heat—thus insuring that the corn, nuts or candy will be brought to the highest point of perfection, and, when done, ready to 'melt in the mouth.'"

GAS LOGS AND HEATERS FOR WINTER

Around the Fire

"I love the winter; don't you? I think the best part of it all is coming home to a fire in the dark," said one friend to another as they cozily seated themselves by the blazing fire of the cheerful gas logs. If you are waiting to light your fire because you have not a fire screen, tongs, fire set, andirons or spark arrester, why not order them at once from the

BALTIMORE GAS CO.

This was the cheerful way in which one of the big gas companies called attention to their gas logs, heaters and accessories. They were wise enough, too, to back up their printed ad with an equally effective show window. In a well-lighted window were shown a half-dozen different types of heaters and a set of gas logs with brass fender and irons and fire set, while in the front center was a card prominently displayed:

Gas Heaters

For those chilly mornings and evenings a GAS HEATER is always on the job.

In the late fall they undertook a special advertising campaign for gas heaters, using the electric railways as a prominent medium for their advertising. One of the best of the ads—decidedly timely, now that strikes seem to be so popular everywhere—suggested:

When the Furnace Goes on a Strike

as even the best of furnaces sometimes do on cold days, you may have need of a heater that will give instant service. Then try

Our GAS HEATER—clean, odorless, with quick heating results, built in a style that suggests an open fireplace; or

Our GAS RADIATOR—four to six column, decorative aluminum top, that will raise the chilly temperature of your room at once.

On the back of their montly gas statements was printed:

That Gas Jet in Your Home

On cold or chilly days attach

a tube leading to a gas heater and you will be surprised at the instant rise in temperature. The initial expense is little.

A Gas Heater gives the happy suggestion of the old-fashioned fireplace, but it may be used in any part of the room.

We have the exact heater that will meet your requirements. Ask to see it when you drop in to pay your monthly bill.

This bit of advice resulted in a number of calls for a demonstration of gas, and it likewise served as a gentle reminder to pay the monthly bill.

Last, but not least, they had printed a card giving the prices on the different styles of gas heaters, and on the other:

Chill Chasers

You need a chill chaser these chilly nights and mornings.

Wasn't it a shivery job getting the youngsters dressed for school this morning? And didn't you almost swear when you attempted to shave in the chilly bathroom? Why shiver and shake when a GAS HEATER will make all the difference in the world?

See them in our window and take one home to-day.

The maximum of heat and comfort, and a very slight cost.

BALTIMORE GAS CO.

The Philadelphia & Suburban Gas & Electric Company, Chester, Pa., is another concern that has been pushing gas heaters and other gas appliances to good advantage this winter, and household appliances with special reference to gifts. One of their windows was of dazzling whiteness—both floor and woodwork—causing the heaters to stand out very distinctly. In the center background was a mantel, in which was a grate with gas logs. At each side were radiators, and beyond them fancy gas logs, while down in front were small cylindrical gas heaters. A card, showing a man stretching out his feet in luxurious comfort toward the blazing gas logs, advised:

No feeling of winter here. Put a Gas Grate or Heater to work in your home and play safe.

They featured gas lamps in a very attractive setting, the rear panels being alternately of brown and red wood, and having twisted strands of red, white and blue paper festooned across the ceiling. On a series of pedestals and small tables were gas lamps of various styles, one type in particular eliciting much enthusiasm, the standard being the simulation of a shell and the shade a soldier's steel helmet. A card advised:

Warning!

The days are getting shorter. Better get your gas lights ready.

A third window played up a new gas toaster, suggesting that it made a much appreciated gift. Set out on a long narrow table were a dozen of the toasters, some with crisp toast in them, others folded into the smallest possible compass, suggesting them as excellent portable conveniences. At either end were long panel cards on which it was advised that: "A Gas Toaster distributes the heat evenly—You can watch the bread toasting—Folds when not in use," and, "Makes delicious toast—Does not burn the crust—No crevices to collect dust." Inside the well-lighted, spic-and-span sales office was shown a gas range on which were displayed several of the toasters, in which were slices of crisp, delicately browned toast. By the side of the range was a large card on an easel:

Your Dream Stove Is Here

It is a handsome gas range that has, in addition, a retained-heat cooking oven which will bake, roast, boil, steam and stew without any attention on your part. It is easy to keep clean and bright, and handsomely finished in black enamel, which never needs blackening.

Just the finest kind of a gift for the housewife!

POPPING CORN WINDOW DISPLAY IN PHILADELPHIA, FEATURING THE CYLINDRICAL GAS HEATER

EAST OHIO GAS COMPANY, Wooster, Ohio, sustained a loss of $100,000 through fire, believed to have been caused by a broken exhaust pipe. Machinery used in extracting gasoline from natural gas was destroyed.

Aggregate Net Sales of Massachusetts Lighting Companies

The gas and electric light companies owned by the Massachusetts Lighting Companies report aggregate net sales, excluding intercompany sales of gas and electricity for December last, of $184,562, compared with $164,936 for December, 1918, an increase of $19,716. For the six months ending Dec. 26, 1919, the net sales were $1,034,392, compared with $932,199 for the corresponding period last year.

PATENTS PERTINENT TO GAS INDUSTRY

Refrigerating Gas and Process of Making

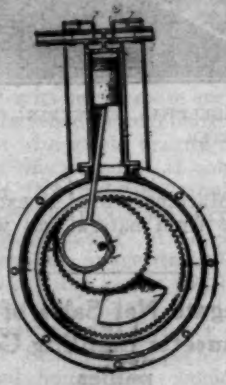
Patent No. 1,325,666; described in Patent Office *Gazette*, Dec. 23, 1919, page 583. Albert G. Crawford, Chicago, Ill., assignor of one-half to Halleck W. Seaman, Chicago, Ill. Filed Feb. 25, 1918. Serial No. 219,119. 7 Claims. (Cl. 252.)

This process is that of forming a refrigerant by mixing liquid sulphur dioxide with a liquefied hydro-carbon gas.

Internal Combustion Engine with Stationary Internal Gear and Second Gear Mounted on Crank

Patent No. 1,326,129; described in Patent Office *Gazette*, Dec. 23, 1919, page 668. Franklin W. Chadbourne, Fond du Lac, Wis. Filed Sept. 14, 1916. Serial No. 120,014. 7 Claims. (Cl. 123—78.)

This internal combustion engine is composed of a crank, a cylinder and



a piston reciprocably mounted within the cylinder. There is also a piston connecting rod, of a stationary internal gear. There is a second gear rotably mounted on the crank arm and meshing with the internal gear. There is a means for connecting the piston connecting rod with the second gear at a point eccentric to the gear. The ratio of the internal gear to the second gear is less than two to one.

Gas Burner

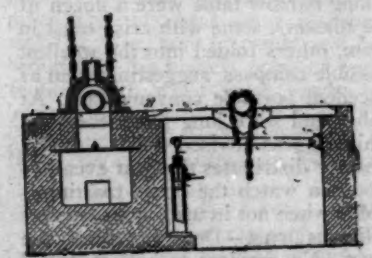
Patent No. 1,325,782; described in Patent Office *Gazette*, Dec. 23, 1919, page 604. Frank W. Gault, Jr., Okolona, Ky., assignor to The Perfect Combustion Burner & Mixer Company, Dover, Del., a corporation of Delaware. Filed Feb. 17, 1919. Serial No. 277,634. 4 Claims. (Cl. 158—99.)

This gas burner is a body having vertical walls. A ledge extends in-

ward from the side of the walls for a distance spaced from the bottom. There is a burner plate with a plurality of slits that extend inward from the edges. The burner plate is supported by the ledge. There is a means for introducing gas into the space below the plate.

Apparatus for Annealing Pipe

Patent No. 1,325,827; described in Patent Office *Gazette*, Dec. 23, 1919, page 613. Hugh A. Bardeen, Los Angeles, Cal., assignor to Bardeen Corporation, a cor-



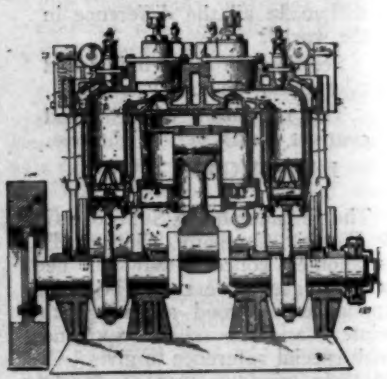
poration of California. Original application filed April 10, 1916, Serial No. 90,267. Divided and this application filed June 11, 1917. Serial No. 174,130. 5 Claims. (Cl. 263—9.)

This apparatus for annealing pipe is composed of walls which form a flue opening. Narrow supports extend across the top of the flue opening on which a pipe may be supported. Below these supports, in the flue opening, there is a burner. The burner is so placed that the hot gases of combustion pass around and evenly heat the exterior of the pipe. The walls of the flue opening are so formed as to direct the gases.

Multiple-Expansion Internal Combustion Engine

Patent No. 1,325,810; described in Patent Office *Gazette*, Dec. 23, 1919, page 610. Elmer A. Speery, Brooklyn, N. Y. Filed July 18, 1917. Serial No. 181,204. 17 Claims. (Cl. 60—15.)

This multiple-expansion internal combustion engine has a cylinder



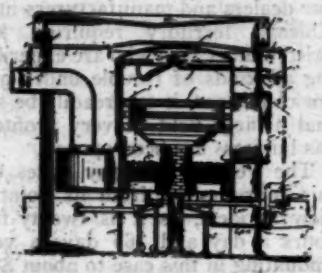
with a valve. A portion of this valve is exposed to the cylinder gases and a stem. There is a means for conducting and dissipating heat rapidly away from the valve through the stem, and a metallic casing in which the stem is movable. There is an intake passage and a valve adapted to guide the current of incoming air into contact with the casing and the stem.

JOHN E. HUBBELL, counselor-at-law and solicitor of patents, formerly of Chambers & Hubbell, Philadelphia, Pa., announces that he has opened offices at 469 Fifth Avenue, New York.

Gas-Burning System for Furnaces, Heating Stoves and Ranges, Etc.

Patent No. 1,325,492; described in Patent Office *Gazette*, Dec. 16, 1919, page 532. Eugene W. Vest, St. Louis, Mo. Filed April 8, 1918. Serial No. 227,245. 6 Claims. (Cl. 158—7.)

In this furnace, or heating stove, there is a "spreader" core, which is located in the fire chamber. This

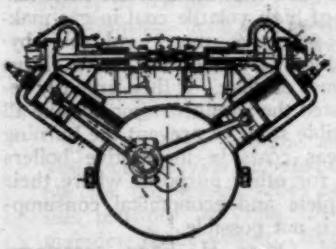


core is composed of a lower portion, which has vertical sides. There is a conical portion above the lower vertical portion. There is a series of slabs of refractory material superimposed above the conical portion. These slabs have staggered baffles at their edges, against which the rising heated gases impinge.

Gas Engine

Patent No. 1,325,765; described in Patent Office *Gazette*, Dec. 23, 1919, page 600. Edwin L. Thomas, Buffalo, N. Y. Filed May 29, 1915. Serial No. 31,167. 1 Claim. (Cl. 123—55.)

This is a multiple cylinder gas engine and comprises a crank shaft and two power cylinders that are provided at their outer ends with fuel in-

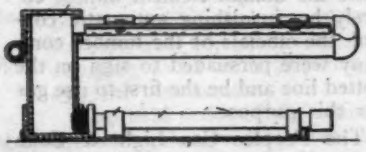


takes and exhaust outlets. These have their axes converging toward the crank shaft. There are also intake and exhaust valves, which control the intakes and exhausts of the cylinders. These valves have reciprocating stems which project toward each other. These stems are arranged at an angle to their respective cylinders. The intake and exhaust valves have a valve shaft arranged between them and parallel with the crank shaft. This valve shaft has cams operating on the inner ends of the valve stems. There are guides for the valve stems. There is an upper base section that connects the lower ends of the cylinders. The cylinders form two sides and the valve stems form the third side of a triangle. The junction of the center line of the valve stems and the axes of the cylinders are so arranged that they are beyond the outer ends of the cylinders. The valve stems and cam shaft are arranged in the same plane. The cylinders, fuel intakes, exhaust outlets, valve guides and the upper base section are formed integrally of a single casting.

Gas Burner

Patent No. 1,325,370; described in Patent Office *Gazette*, Dec. 16, 1919, page 510. Carl Olsen and Peter Pimlott, Brooklyn, N. Y. Filed Aug. 16, 1918. Serial No. 250,148. 1 Claim. (Cl. 158—63.)

This gas burner consists of a hollow body forming a pressure equalizing chamber. There is a fuel pan, and at one end of the fuel pan the pressure equalizing chamber rests

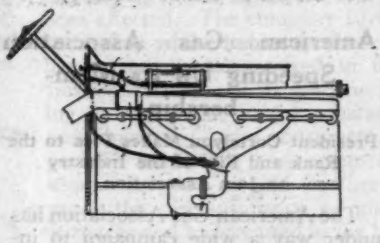


within. A burner pipe is tapped into the lower end of the hollow body and extends normal thereto. There is a retort, which includes a coil pipe that has spaced parallel stretchers. One of these stretchers is tapped into the upper portion of the hollow body. The other stretchers extend on the opposite sides of the hollow body and about it. The stretcher that is tapped into the upper portion of the hollow body is disposed superposed relative to the burned pipe and directly over it and in parallel relation to it.

Gas-Engine Gas Saver and Carbon Decomposer

Patent No. 1,325,286; described in Patent Office *Gazette*, Dec. 16, 1919, page 495. Arthur E. Garber, San Diego, Cal. Filed Jan. 22, 1917. Serial No. 143,612. 1 Claim. (Cl. 123—25.)

This is a combination of a water supply tank and a combined water and air heater. There is a means for conducting the water from the water supply tank to the combined heater. There is also a means for observing the quantity of water that is conducted and for regulating and stopping it. There is an automatic means for admitting air with the water to the combined heater. Then there is a means for conducting the heated water and air to the manifold of the gas engine. In connection with this there is a means for shutting off the supply of heated water and air to the

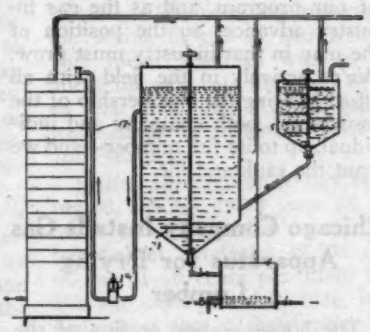


manifold. This means admits the air from outside to the manifold simultaneously with the stopping of the heated water and air supply.

Method of Extracting Ammonia

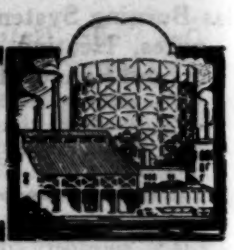
Patent No. 1,324,979; described in Patent Office *Gazette*, Dec. 16, 1919, page 438. Emile Piron, New York, N. Y. Filed July 20, 1918. Serial No. 245,910. 1 Claim. (Cl. 203—1.)

This is a method of extracting ammonia from crude ammoniacal waters from coke ovens and the like. It consists of thoroughly mixing the waters while at approximately atmospheric temperature, and without preheating, with non-preheated alkali at



approximately atmospheric temperature. The mixture passes continuously to the bottom of a decanter and the clear liquid therefrom is continuously drawn off. This permits the precipitates to settle therein. The clear liquid passes continuously to a still and the ammonia is extracted from it, the precipitates being drawn off from the decanter from time to time.

NEWS OF THE GAS INDUSTRY



American Gas Association Speeding Up Its Membership

President Cortelyou Makes Plea to the Rank and File of the Industry to Join Association

The American Gas Association has under way a wide campaign to increase its membership and make its membership embrace every man in the industry. In a word of greeting in the January A. G. A. monthly, George B. Cortelyou says:

"So far, they're with us, nearly 1,800 strong—chemists, engineers, new-business and commercial men, officers and executives, subordinates and chiefs—the rank and file of the gas industry—as vital to its forward march and just as much its backbone as in any army, and we want more of them. The rank and file of this association is its active, individual membership—the most potent factor in its work and the greatest influence for its success. Nor shall this organization ever neglect what it, in turn, can do for the individual. The interests of the individual are a part of our program, and as the gas industry advances so the position of the man in that industry must grow. We're actively in the field with an effort to bring the membership of the association, both company and individual, up to its full number—and we want the rank and file."

Chicago Company Installs Gas Apparatus for Drying Lumber

The house heating section of the Peoples Gas Light & Coke Company has opened up a new field for the use of gas in the Chicago territory, viz.: the use of gas-fired steam boilers for lumber-drying kilns.

Some time ago the Rittenhouse & Embrie Lumber Company asked for an estimate on the cost of heating one of their lumber mills with Clow gasteam radiators. Salesmen of the gas company found that the company was going to build a kiln for drying lumber, and asked for an opportunity to submit an estimate on the cost of gas boilers to furnish steam.

The Chicago company's proposal was to furnish a battery of two Bryant automatic gas boilers having a total capacity of 40 hp. each, equipped with automatic water feeds and overflows, automatic low-water cut-offs, steam-pressure controls on the gas and temperature regulation on the kilns.

As the principal difficulties encountered in the drying of lumber are due to lack of uniformity of temperature, causing at times the loss of an entire load of lumber, and as the Chicago company could eliminate the human element almost entirely by furnishing automatic control, the officials of the lumber company were persuaded to sign on the dotted line and be the first to use gas for this purpose.

The Peoples Gas Light & Coke Company also received the lumber company's heating contract of twenty-one gasteam radiators for the mill, and its salesmen triumphantly brought to the gas office orders totaling about $4,500.

After considerable delay, caused by labor trouble, both jobs were completed. The general superintendent of the lumber company, when interviewed recently regarding the installation, said that he was entirely satisfied with both the cost of operation and the performance of the plant, and that the lumber turned out was far superior to any previously received. He also stated that the firm would have lost $400,000 a year in business, due to delay in filling orders and spoilage of lumber, had they been dependent upon someone else for drying. He expressed his appreciation of the immediate service rendered by the Peoples Gas Light & Coke Company when called upon, and stated that it could use him as reference as often as it desired.

The Chicago company has since received two prospects from lumber men who have seen this job and were very favorably impressed with it.

As there are upward of 500 lumber dealers and manufacturers in the Chicago territory requiring kiln-dried lumber, and who are experiencing all kinds of trouble under present conditions, it can readily be seen that a large field of very profitable gas business has been opened.

The Peoples company states that this consumption from its point of view is ideal, as it is twenty-four hours a day and 365 days a year, amounting in this case to about $350 per month.

National Committee on Gas Service Takes Steps to Prevent Misuse of High Volatile Coals

On Jan. 14 the National Committee on Gas and Electric Service presented to the United States Railway Administration a resolution adopted by the executive board of the American Gas Association calling attention to the fact that the use of high volatile coal for other than gas-making purposes results in economic waste.

The resolution pointed out the need for economy in the use of all fuels, and the fact that the carbonizing of high volatile coal in gas making produces many valuable by-products in addition to a large amount of coke. It then urgently requested the administration to take all possible steps to prevent the burning of gas coals in locomotive boilers and for other purposes where their complete and economical consumption is not possible.

Col. Oscar H. Fogg, secretary-manager, has stated that the American Gas Association has every reason to believe that this move will result in definite action by the U. S. Railway Administration.

THE SOUTHERN CALIFORNIA GAS COMPANY has been authorized by the Railroad Commission to issue $300,000 of its first mortgage 6 per cent bonds. The bonds are to be sold for not less than 93 per cent of their face value plus accrued interest.

One Dollar Natural Gas Rate Effective in Toledo, Ohio

The city of Toledo, Ohio, will have the first "dollar a 1,000 ft." rate for natural gas in the State of Ohio, according to a schedule filed with the Public Utilities Commission by the Northwestern Ohio Natural Gas Company.

The new schedule provides that the dollar rate will apply only to the first 1,000 ft. used by subscribers. Thereafter the rate will be 35 cents a 1,000 ft. The company will make a readiness to serve charge of 65 cents for the first 1,000 ft., in addition to the regular rate of 35 cents.

The new Toledo schedule of rates which is effective immediately for the next two years, is as follows:

Sixty-five cents a month service charge.

Thirty-five cents per 1,000 ft. for the first 5,000 ft.

Forty cents per 1,000 ft. for the second 5,000 ft.

Forty-five cents per 1,000 ft. for the third 5,000 ft.

Fifty cents per 1,000 ft. for the next 5,000 ft.

Fifty-five cents per 1,000 ft. for gas used above this amount.

Present rates are 35 cents a 1,000 feet.

Lima Company Will Make No Refund Unless Ordered by the Supreme Court

According to a statement made by E. R. Curtin, president of the Lima (Ohio) Natural Gas Company, the supply of natural gas from the Medina field has been greatly increased by the completion of two good wells by the Medina Gas & Fuel Company. The wells were drilled east of Mansfield.

It is believed that the additional wells will provide an adequate supply for the several cities served in this territory of Ohio for the remainder of the winter. Restrictions against the use of gas for other than cooking purposes have been removed, and reports state that the supply at present is plentiful.

Relative to a refund being made of the service charge of 35 cents per month for several months past, Mr. Curtin stated that no refunder can be made until the company has been officially notified by the Ohio Supreme Court that it had reversed the ruling of the State Utilities Commission, allowing the additional charge.

Southern Counties Company Applies for $252,000 Bond Issue

The Southern Counties (Cal.) Gas Company has applied to the California State Railroad Commission for authority to issue $252,000 of bonds, the request being based on an expenditure of $315,170.27 during October and November, 1919, for permanent extensions, betterments and improvements to the company's plant.

Indianapolis Company Asks Right to Increase Charge for Laying Service Pipe

In a petition filed with the Indiana Public Service Commission, the Citizens' Gas Company of Indianapolis asks authority to continue its present rate of 60 cents a 1,000 cu. ft. for gas after May 1, 1920; to establish 60 cents as the monthly minimum bill to all consumers; to increase the charge for laying service pipe from mains of the company, and for the modification of the commission's order of April 26, 1918, requiring the company to set aside $100,000 annually for amortization.

The 1918 order of the commission increasing the gas rate from 55 to 60 cents provided that on May 1, 1920, the company show cause for the continuation of the higher rate. The petition avers that no increase beyond the 60-cent rate will be asked.

Increases in minimum charges for laying service pipes from mains to the meters of consumers are from $7.50 to $10 for laying service pipes, and from $5 to $7.50 where two or more pipes are laid for the same person in the same city block. The petition also asks for authority to charge $5 additional for pipes laid in a street that has been permanently improved and authority to require an applicant for service to deposit a sum equal to the estimated cost of the work.

The third subject in the petition is made because the increase in the price of all pipe and other materials and labor in this line of work having advanced two and three fold and the company is losing money on each connection made at the present rates allowed. As such a loss must ultimately affect rates for gas it is regarded as an unfair practice to the general public.

Sandusky Company's Records Show Increased Rate Has Effected Conservation

The Sandusky (Ohio) Gas & Electric Company reports that a careful analysis of its gas bills rendered its consumers since the fixing of the increased rate (50 cents) for natural gas, shows that a saving of fuel has been effected. The company further states that while domestic consumers have naturally economized in their former wasteful use of gas, the saving is largely due to the substantial curtailment by large consumers, especially industrials and commercial users. As soon as cold weather appears the discontinuance of gas in furnaces and boilers used in the heating of larger homes, business blocks, hotels, flat and apartment buildings, etc,, will still further reduce the use of gas. Consumers whose consumption of gas in furnaces during the previous winter was from 50,000 cu. ft. to 100,000 cu. ft. per month, bills for which averaged from $15 to $30 at 30 cents per 1,000 cu. ft. are discontinuing its use for heating purposes, and have laid in a supply of coal, as under the new rate their bills would average from $25 to $50 per month, which makes the use of gas at 50 cents per 1,000 cu. ft. practically prohibitive for these large heating purposes.

The new Natural Gas Rate Ordinace, by which the price was increased from 30 to 50 cents per 1,000 cu. ft., was placed in effect on June 7, 1919. The company reports that the saving in gas as shown by the July meter readings was so great under the new rate that they decided to wait until the August readings were made in order to verify the July readings.

During the regular 30-day reading period, namely from June 20, 1919, to July 20, 1919, the company distributed in Sandusky 49,608 cu. ft. of gas at 50 cents per 1,000 cu. ft. For the same period in 1918, its records show that it distributed 74,322 cu. ft. at 30 cents per 1,000 cu. ft., a distinct saving of 24,714 cu. ft., or 33¼ per cent of the total volume of gas for this monthly period.

The Sandusky Company's report further show that from July 20, 1918, to Aug. 20, 1918, it distributed in Sandusky 75,235 cu. ft. of gas, and from July 20, 1919, to Aug. 20, 1919, with the 50 cent rate ordinance in effect, it distributed 52,307 cu. ft., a

saving of 22,865 cu. ft. or 30.39 per cent of the amount consumed during the same period in 1918. Furthermore, figures for July and August, 1918, took no account of leakage in the distributing system, which is known to be not less than 8 per cent, and despite the best endeavors probably exceeds that amount. Adding this amount of leakage, the saving at the new and higher rate totals 38.67 per cent for July and 35.96 per cent for August.

The Sandusky Gas & Electric Company states that these figures are absolutely correct, as shown by its records and verified by meter station readings.

C. B. Wilcox, chairman of the board of directors of the Sandusky Gas & Electric Company, in a statement said: "These results prove conclusively to me that the prolongation of natural gas service can be accomplished only through the public voluntarily making substantial increase from the old rates heretofore prevailing. It would seem to me that if every town and city you are serving would promptly advance rates, say 20 to 25 cents per 1,000 cu. ft., there would be sufficient gas saved in each community to make certain that all communities would receive good service. To my mind there is absolutely no question whatever in regard to this conclusion.

"Incidentally, I might add that we now realize that a flat rate is not as desirable as the newer scale of rates which specified a certain price for smaller quantities used each month with an ascending scale of price for the greater quantities used. However, when our new rate ordinance was adopted the new rate forms had not come into public attention or use."

Decision of Ohio Commission Overruled

Overruling a recent decision of the Ohio Public Utilities Commission, the Ohio Supreme Court held that a natural gas company has no right to make a "readiness-to-serve" charge in addition to regular charges, fixed by city councils. The decision came as result of the Lima Natural Gas Company's efforts to make such charges in Lima, Ohio.

HAVERHILL (MASS.) GAS LIGHT COMPANY has declared a quarterly dividend of 2¼ per cent ($1.12½ a share), paid Jan. 2 to holders of record Dec. 22.

Contra Costa Company Granted Third Rate Increase

The Contra Costa Gas Company has been granted a rate increase ranging from 20 to 30 per cent by the California State Railroad Commission, according to a copy of the commission's decision received recently by District Attorney A. B. Tinning. The company serves gas to Martinez, Crockett, Antioch, Pittsburg and Concord, Cal. A hearing on the company's application for increased rates was conducted in Oakland, Cal., on Oct. 13. This makes the third rate increase granted the company since March, 1918, and was necessitated, the commission's decision said, because of rising costs to the company.

Bondholders Ask for Receiver for Wenatchee Gas Company

A group of bondholders brought suit against the Wenatchee Valley Gas & Electric Company which furnishes light for the city of Wenatchee, Wash., and electricity for various consumers, included in which are two or three of the largest irrigation concerns in Chelan County, Wash.

The suit is brought by W. S. Taylor and John B. Fassett, of Pennsylvania, and W. D. Lovell, of Minnesota. The plaintiffs ask for the appointment of a receiver on behalf of the bondholders whom they represent. The three plaintiffs ask for $654,000 and interest on a general first mortgage.

Most of the bonds of the company are held by Pennsylvania investors whose interests are cared for in this suit which was brought by Graves, Kizer & Graves.

The defendant company gave a general first mortgage for the benefit of the bondholders in the sum of $2,000,000. Not nearly that amount of bonds, however, was issued. At present only $654,000 in bonds are outstanding. The three plaintiffs, representing the bondholders, are suing to recover principal and interest.

The defendant company formerly was known as the Arthur Gunn Company. Gunn was president of the company until his death, two years ago.

F. M. Collard, of Wenatchee, Wash., represents the defendant company, which, it is alleged in the bill of complaint, is unable to meet the demands of the bondholders.

Jacksonville Gas Association Holds Its Annual Banquet

The Jacksonville (Fla.) Gas Association held their annual banquet on Dec. 9, 1919, in the clubrooms of the association with ninety-five members present. It is reported that an added charm was lent the occasion by the presence of the lady members of the association who attended en masse. The vice-president of the Jacksonville Gas Company, Harry B. Hoyt, acted as toastmaster. After dinner speeches were in order in which the ladies figured prominently.

Officers for the ensuing term were elected as follows: H. G. Vesey, president; A. H. Rumbold, vice-president, and R. F. Daugherty, secretary-treasurer.

Meetings of the association during the year 1920 will be held Tuesday evening of each week beginning at eight o'clock, and it is thought by everyone that affairs look bright for the good old J. G. A.

Rationing of Natural Gas or Manufactured Gas for Louisville Likely

Prevention of a serious gas shortage in Louisville, Ky., this winter may be effected by a rationing of the gas supply along lines adopted by other cities or by the use of manufactured gas, Halford Erickson, vice-president of the Louisville (Ky.) Gas & Electric Company, said:

"We have two gas-making plants which could be put in use on reasonably short notice and could furnish enough gas to meet demands at a slightly increased cost," he said.

"Only those persons who burn above 800 or 1,000 cu. ft. of gas," he added, "would feel the effects of the increased cost, and to the great majority of consumers the increased cost would be negligible. Gas rationing is the only recourse left if the people of Louisville, Ky., want an adequate supply."

Mr. Erickson said that his company was buying gas from other companies at increased prices to meet the demand caused by the high cost of coal and its scarcity, and said they were not making operating expenses.

"In New York," he declared, "the Public Service Commission has forbidden the use of gas for factories and heating furnaces, and the Ohio and Pennsylvania authorities have limited consumption to 1,100 cu. ft. a day.

Personal Notes

Charles L. Holman to Become Vice-President of New Subsidiary of Guaranty Trust Co.

Will Not Resign as Head of Laclede Company, but Conduct Its Affairs from New York

Charles I. Holman, president of the Laclede Gas Light Company, of St. Louis, Mo., and G. H. Walker, one of the reorganizers of that company and president of the G. H. Walker Stock & Bond Company, of St. Louis, are to become leading officials of a new subsidiary of the Guaranty Trust Company of New York. It was learned that Mr. Walker will be president of the new company and Mr. Holman vice-president and its expert on public utilities.

Mr. Holman has been president of the Laclede Gas Light Company since 1912. Prior to that time he was successively secretary, general manager and vice-president of the company, having come from Topeka in 1903 to become affiliated with it.

He is fifty years old and began his business career in the land business in Topeka in 1887. Following experience in the street railway and stock and bond business there, he became business manager of the Topeka Daily Capital. After this he entered the milling business, which he left to become connected with the Atchison, Topeka & Santa Fe Railroad. Following his railroad experience he came to St. Louis and the Laclede company.

Mr. Holman's residence in St. Louis County will be for sale, though he will not resign as head of the Laclede company but will conduct its affairs from New York.

Mr. Holman received much newspaper publicity in 1916, when, on the advice of counsel, he refused to testify before the Board of Aldermen in an inquiry into the price of manufacturing gas, which the aldermen hoped to establish on the theory that the city could exact a tax of 5 per cent on the receipts of the company. He was placed under technical arrest and the case was carried to the Missouri Supreme Court, where a decision forcing Mr. Holman to testify was handed down.

Mr. Holman is a member of a number of St. Louis clubs and is an enthusiastic golfer. In the business world he is noted for his ability to harmonize conflicting interests and to maintain satisfaction among his employees.

Mr. Walker was credited with being the leading spirit in the reorganization of the Laclede company ten years ago, when it was purchased from James Campbell and the North American interests and came under the domination of the Adolphus Busch faction, headed by Mr. Walker, who became a member of the company's executive committee.

CAPTAIN WM. MCGREGOR, vice-president and general manager of the Pawtucket (R. I.) G. & E. Company, of Woonsocket, R. I., has been elected to the board of directors of the Pawtucket (R. I.) Chamber of Commerce.

W. Y. CARTWRIGHT, vice-president of the Union Gas & Electric Company, of Cincinnati, Ohio, has been attending the U. S. Conference on Natural Gas Conservation in Washington, called by Secretary of the Interior Franklin K. Lane.

J. H. HOOVER, commercial manager of the Union Gas & Electric Company, of Cincinnati, Ohio, has also been representing his company at the U. S. Natural Gas Conference in Washington.

National Committee on Gas and Electric Service Takes Action on Proposed Increase in Coal Prices

Under date of Jan. 13, 1920, G. W. Elliott, secretary of the National Committee on Gas and Electric Service, acting for the public utilities, presented the following letter to Attorney-General A. Mitchell Palmer and the chairman of the National Coal Committee, H. M. Robinson, in Washington, D. C.:

SIR:

Our committee, which represents the public utility industries in affairs of mutual interest between themselves and the Federal Government, has had its attention called by many public utility companies throughout the country to the action of the bituminous coal operators in increasing coal prices as a result of the recent 14 per cent advance in miners' wages.

Speaking for the public utilities, it was understood by them, from the statements made by Dr. H. A. Garfield while acting as Federal Fuel Administrator, that the basis of the settlement of the coal strike as proposed by him would, among other things, have provided that:

First—He would not sanction or permit any additional costs for coal to be placed on the public;

Second—That from investigations conducted by the U. S. Fuel Administration he considered a 14 per cent increase in miners' wages to be quite sufficient to bring their earnings up to amply meet the increased costs of living;

Third—That the investigations also disclosed that this 14 per cent increase could equitably be absorbed by the operators and producers, thereby holding the price of coal to the consumers where it had been without any increase in price.

While it is stated that the miners' representatives demurred at this arrangement, the operators expressed their satisfaction and generously offered to absorb the proposed 14 per cent increase in miners' wages, thus avoiding an increase in the price of coal to the consumer. It has been stated in the public press that this was also the basis of the settlement definitely arranged at a later date between the United Mine Workers and the Attorney-General of the United States, and which brought about the settlement of the strike.

It was understood that the final arrangement included other considerations, such as reference to an investigatory commission to which might also be assigned powers to fix prices, rate of wages, conditions of service, etc., etc.

It has now been brought to our attention that the producers are notifying those with whom they have contracts made previous to the settlement of the strike that where such contracts provide for automatic increase in price if miners' wages are raised, they are entitled to increase the price of coal under such contracts in accordance with the terms thereof. In this way they would be passing along to the consumer the 14 per cent advance in miners' wages already accorded to them, notwithstanding the statement of the Fuel Administrator that the operators were already obtaining a price which would allow them to absorb this additional expense.

It was generally understood through the public press that this the

operators specifically agreed to do, and we know of no mention having been made of exceptions to be applied to contract coal nor of any reference by the operators that coal supplied under such contracts would be exempt from the limitations on coal prices.

The public utilities of the country annually consume approximately 50,000,000 tons of coal, and their serious financial difficulties at the present time, particularly in the case of the street railway companies, are quite generally understood and appreciated. They are unable to pass along increased costs of operation owing to the fact that their charges for service are fixed by statutory enactment, franchise provisions or by public service commissions and other regulatory bodies.

If the price of coal under contracts made previous to the settlement are to be subject to increase because of the 14 per cent increase in miners' wages, a very large part of the increase in miners' wages will thereby be passed along to the public, contrary to the general understanding which prevailed at the time that the settlement was made. Had the utilities been advised that such a serious additional burden was to be placed upon them, they would certainly have registered a formal protest at that time to both the Washington authorities and to the local commissions under whose jurisdiction they are conducted.

We would be glad to receive from you a definite statement, which can be forwarded to the utility companies which we represent, as to the policy which the Washington authorities are proposing to pursue, pending the final report of the National Coal Commission appointed by the President, in the matter of prices for coal under contracts antedating the strike settlement.

Very truly yours,
(Signed) G. W. ELLIOTT,
Secretary.

Gas Flow Struck in Putnam, Texas

Benedum & Trees Company's well, two miles northeast of Putnam, Callahan County, Texas, is reported to have struck a big gas sand around a depth of 650 ft., estimated at from 2,000,000 to 6,000,000 ft. This is eight miles northeast of the Ohio Cities Grant gasser that made around 40,000,000 ft. of gas at a depth of 621 ft.

Explosion Blew Gas Generator Through Roof

A machine for the generation of gas in the plant of the Kelley Welding Company, Cincinnati, Ohio, exploded and hurled itself through the roof of the building. Twelve large windows were demolished and the generator was totally wrecked.

A repair man about the place was attempting to thaw the generator, which had frozen over Sunday, when the gas it contained became ignited. He escaped with a few scratches simply because the generator was blown straight up from its base, penetrating the roof like a projectile. The damage is estimated at $1,500, including the generator, valued at $400.

Construction Notes

Gas Lines of Morgantown Company Connected with Carnegie Company

Connection between the gas lines of the West Virginia Traction & Electric Company, of Morgantown, W. Va., and the Carnegie Gas Company has now been made near the Pennsylvania State lines. The contract between the two companies has been signed by the Carnegie company and J. D. Whittemore, receiver for the West Virginia Traction & Electric Company, and has been approved by the court The West Virginia Public Service Commission has approved the rate of 28 cents a 1,000 cu. ft. The West Virginia company pays the Carnegie company 23 cents a 1,000.

Under the new arrangement, the company may get 400,000,000 cu. ft. of gas from the Carnegie company during the next twelve months. It may have 48,000,000 ft. during the next month, if it has use for that much, or more than 1,500,000 ft. a day. The arrangement will mean an adequate supply for domestic and industrial consumers during the next year.

THE MARION (OHIO) GAS COMPANY is considering building a manufactured gas plant owing to the acute shortage of natural gas which is piped to that city from southern Ohio and West Virginia.

Gas & Electric Construction Company Plan Building Plant in Cedar Rapids

E. E. Collins, president of the American Securities Corporation and a stockholder and director of the Gas & Electric Construction Company, of Cedar Rapids, Iowa, presented to the City Council for its consideration a draft of a franchise to construct a standard manufactured gas plant in Tama, Iowa, for cooking, lighting, heating and power.

A committee of three, including the city attorney, was appointed by the Mayor to confer with Mr. Collins and go over the franchise and make such changes in it as may be necessary to meet the requirements of the Tama City Council.

Mr. Collins stated that it is the intention of his company, if a franchise can be secured in both Tama, Iowa, and Toledo, Ohio, to serve gas to both cities from a central station plant. The gas to be supplied for cooking, lighting, heating and power will be water gas.

Glasgow Company Building 4-in. Pipe Line

The Glasgow Gas & Fuel Company is now arranging to build a 4-in. pipe line from its gas wells to Glasgow, Ky. The route of its pipe line has not been fully decided on, as the gas will first be run to an absorbtion plant where the gasoline will be extracted. The company expects to build one of the most modern gasoline plants to be had in or near Glasgow in order to be close to market. The company has a lot of splendid wells and is now drilling diligently and looking for good wells on the Roberts lease at any moment.

Billings Gas Company Plans Change to Coal Gas Production

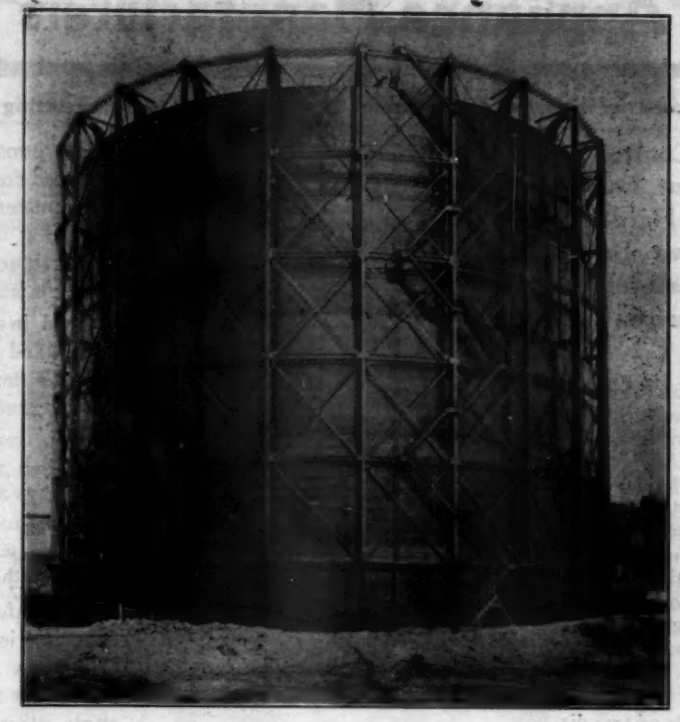
At the annual meeting of the directors of the Billings (Mont.) Gas Company a number of improvements were considered. Because of the growing scarcity of raw materials a change in the method of making gas is proposed. If the new process is used coal gas will be produced with a large quantity of gas-house coke, suitable for commercial and domestic use, as a by-product.

The following officers were elected for the year: R. C. Cardell, president; T. A. Snidow, vice-president; George Arnott, Jr., treasurer, and G. E. Snell, secretary.

RITER-CONLEY CO.

PITTSBURGH, PA.

PURIFYING BOXES



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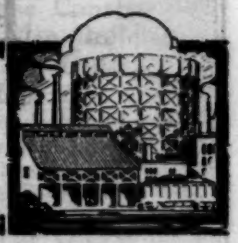

Conducted by Business Department of American Gas Engineering Journal

The Automatic Control of Heat an Important Factor in Annealing and Hardening — Instrument Described in Catalogue Issued by American Gas Furnace Co.

In a catalogue issued by the American Gas Furnace Company, 24 John Street, New York, entitled "The Automatic Heat Controller," is given a complete description of this device. "This instrument," it states, "automatically controls heat within 5 deg. Fahr., thus fulfilling our ideal conception of a self-regulating gas furnace, and rounds out a long series of useful inventions designed to make mechanical heating processes more reliable and economical by the correct use of gas as fuel."

The instrument consists of two distinct parts: First, a pyrometer so modified and arranged that the movement of the dial pointer not only indicates but controls the temperature; second, a pneumatic valve attached to the furnace, operated by the same air pressure supplied to the furnace for combustion, admitting both gas and air in the correct proportion required to produce and maintain the heat wanted.

It states that "the instrument effectually protects the work from overheating, secures a uniformity of output and permits the operator to give his whole attention to actual work, instead of observing and regulating his heat, which, especially in hardening, frequently requires the major portion of his time."

The illustration is a heating machine for continuous hardening and annealing of small work with automatic heat controller. Note that thermo couple is inserted in center of a revolving spiral retort.

This is only one of several heating machines and tempering furnaces manufactured by this company which uses gas as a fuel.

HARDENING AND ANNEALING FURNACE

Portable Belt Conveyors for Handling Coal and Other Materials Horizontally

Portable belt conveyors for handling material horizontally or at a slightly incline are described and illustrated in a new folder, entitled "Type B Portable Belt Conveyors," just published by the Portable Machinery Company, of Passaic, N. J.

These machines, in addition to being used for handling coal, coke and other materials around a gas plant, are being used for conveying many manufactured products, bagged material such as cement, etc.

Used in series or in conjunction with fixed conveying systems, they afford a flexible, convenient and automatic conveying arrangement.

These machines are made with a 16-in. belt and in length from 12 ft. 6 in. up to 37 ft. The closely spaced carrying rollers provide a belt support that will carry pieces weighing up to 200 lb.

The safe maximum conveying capacity is one ton per minute. Ordinarily the belt travels about 125 ft. per minute. The maximum angle at which this type of conveyor will safely carry fine or lump coal or similar material can be elevated about one foot high to every two and one-quarter feet of length. They are motor driven—the motor being mounted in the frame underneath the conveyor, but if desired motor can be mounted on a frame over the top of the conveyor.